

10/537297

AMENDMENTS TO THE CLAIMS:

JC17 Rec'd PCT/PTO 02 JUN 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): An accelerometer micromachined in a plane plate comprising having a base, and at least one comprising a measurement cell including a moveable seismic mass [[(1)]] connected to the base and capable of moving translationally along [[the]] a sensitive Oy axis :

of the accelerometer under the effect of an acceleration γ along this Oy axis, a resonator cell comprising a resonator [[(30)]] that can vibrate and be subjected to a tensile or compressive force depending on the direction of acceleration γ and is placed symmetrically with respect to an axis of symmetry S of the structure, this axis S being parallel to the Oy axis and passing through the center of gravity of the seismic mass [[(1)]] [[,]] :

the measurement cell furthermore including amplification means [[(2)]] for amplifying the acceleration force that generates the translation, which means comprise at least one include an anchoring foot [[(7)]] for anchoring to the base, two rigid terminations [[(4)]] of the resonator cell and two pairs of micromachined arms [[(5, 6)]], the pairs being symmetrical with respect to the axis S, each pair comprising a first arm [[(5)]] connecting a first point of attachment [[(A)]] to a termination [[(4)]] and a second point of attachment [[(B)]] to the seismic mass [[(1)]], and a second arm [[(6)]] connecting a third point of attachment to the same termination [[(4)]] and a fourth point of attachment to the anchoring foot [[(7)]], the angle α between the Ox axis perpendicular to the Oy axis and the line joining the first and second points of attachment [[(A, B)]] being symmetrical with respect to the axis connecting the terminations [[(4)]] via their mid-point, of the angle between the Ox axis and the line joining the third and fourth points of attachment and sufficiently small for the tensile or compressive force exerted on the resonator [[(30)]] to be greater than the acceleration force exerted on the seismic mass [[(1)]], characterized in that wherein the resonator cell comprises two rigid embedding elements [[(40)]] for embedding the ends of the resonator [[(30)]] and two pairs of secondary micromachined arms [[(50, 60)]], these pairs being symmetrical with respect to the axis S, each pair comprising a first

secondary arm [[(50)]] connecting a first point of attachment [[(D)]] to an embedding element [[(40)]] and a second point of attachment [[(C)]] to a termination [[(4)]] of the cell, and a second secondary arm [[(60)]] connecting a third point of attachment to the other embedding element [[(40)]] and a fourth point of attachment to the same termination [[(4)]] of the cell, the angle β between the Oy axis and the line joining the first and second points of attachment [[(D, C)]] being symmetrical with respect to the axis passing through the mid-points of the embedding elements [[(40)]], of the angle between the Oy axis and the line joining the third and fourth points of attachment and low enough for the tensile or compressive force exerted on the resonator [[(30)]] to be greater than the acceleration force exerted on the seismic mass [[(1)]].

2. (currently amended): The accelerometer as claimed in ~~the preceding~~ claim 1, ~~characterized in that wherein~~ the pairs of arms [[(50, 60)]] are straight or curved.

3. (currently amended): The accelerometer as claimed in ~~either of the preceding~~ claim[[s]] 1, ~~characterized in that wherein~~ the first point of attachment [[(A)]] of the first arm [[(5)]] is located further away from the axis of symmetry S than its second point of attachment [[(B)]].

4. (currently amended): The accelerometer as claimed in ~~either of~~ claim[[s]] 1 ~~and 2~~, ~~characterized in that wherein~~ the first point of attachment [[(A)]] of the first arm [[(5)]] is located closer to the axis of symmetry S than its second point of attachment [[(B)]].

5. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that wherein~~ the pairs of arms [[(5, 6)]] are straight or curved.

6. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that wherein~~ the seismic mass [[(1)]] surrounds the amplification means [[(2)]].

7. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the first and second arms [[(5, 6)]] have a thickness that can vary along their length.

8. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein it furthermore includes guiding arms [[(8)]] for guiding the seismic mass [[(1)]], which arms lie along the Ox axis and are connected to a part [[(9)]] fixed to the base.

9. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein it comprises two measurement cells ($10, 10'$) placed with respect to each other in such a way that, under the effect of an acceleration, the resonator of one measurement cell [[(10)]] undergoes a tensile force while the resonator of the other measurement cell [[(10')]] undergoes a compressive force.

10. (currently amended): The accelerometer as claimed in ~~the preceding~~ claim 9, ~~characterized in that~~ wherein the two measurement cells ($10, 10'$) have a common seismic mass.

11. (currently amended): The accelerometer as claimed in ~~either of~~ claim[[s]] 9 and 10, ~~characterized in that~~ wherein the arms ($5, 6, 5', 6'$) are placed in the same way for each of the measurement cells ($10, 10'$).

12. (currently amended): The accelerometer as claimed in ~~either of~~ claim[[s]] 9 and 10, ~~characterized in that~~ wherein the arms ($5, 6, 5', 6'$) are not placed in the same way for each of the measurement cells ($10, 10'$).

13. (currently amended): The accelerometer as claimed in ~~any one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the resonator [[(30)]] comprises a vibrating beam, or two vibrating beams forming a tuning fork, or at least three vibrating beams or a torsion bar.

14. (new): The accelerometer as claimed in claim 2, wherein the first point of attachment of the first arm is located further away from the axis of symmetry S than its second point of attachment.

15. (new): The accelerometer as claimed in claim 2, wherein the first point of attachment of the first arm is located closer to the axis of symmetry S than its second point of attachment.

16. (new): The accelerometer as claimed in claim 3, wherein it furthermore includes guiding arms for guiding the seismic mass, which arms lie along the Ox axis and are connected to a part fixed to the base.

17. (new): The accelerometer as claimed in claim 4, wherein it comprises two measurement cells placed with respect to each other in such a way that, under the effect of an acceleration, the resonator of one measurement cell undergoes a tensile force while the resonator of the other measurement cell undergoes a compressive force.

18. (new): The accelerometer as claimed in claim 10, wherein the arms are placed in the same way for each of the measurement cells.

19. (new): The accelerometer as claimed in claim 10, wherein the arms are not placed in the same way for each of the measurement cells.

20. (new): The accelerometer as claimed in claim 9, wherein the resonator comprises a vibrating beam, or two vibrating beams forming a tuning fork, or at least three vibrating beams or a torsion bar.